

revised
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AGING TRANSPORT SYSTEMS RULEMAKING ADVISORY COMMITTEE

Meeting Minutes

Date: October 11-12, 2000

Time: 9:00 a.m.

Place: Federal Aviation Administration
Bessie Coleman Conference Center
800 Independence Avenue, SW.
Washington, DC.

Administrative

Mr. Kent Hollinger, the Aging Transport Systems Rulemaking Advisory Committee (ATSRAC) Chair, called the meeting to order at 9:20 a.m. Mr. Charles Huber, Executive Director, read the advisory committee briefing statement, after which Mr. Hollinger noted a recent Congressional Hearing attended by himself and several other individuals who provided testimony during the hearing. He also noted that Dave Evans had written an article that appeared in "Air Safety Week" which was based largely on that hearing and copies were made available to those in attendance. Mr. Hollinger further noted that USA Today *this morning* reported some information that ATSRAC has yet to discuss and approve, but has somehow been presented to the public.

Mr. Hollinger set the stage for the 2-day meeting indicating that it is the culmination of a lot of work that has been done. He indicated that three working groups would be presenting their recommendations and committee members should review the reports and be prepared to discuss implementation strategies.

After introductions, the agenda was briefly reviewed (Handout 1). Next, minor revisions were proposed to the July 11-12, 2000 meeting minutes (Handout 2). It was moved and seconded that the minutes be accepted, with minor revisions.

LESSONS LEARNED DISCUSSION FROM NON-INTRUSIVE REPORT

Mr. Mike Nancarrow briefed the committee on Lessons Learned. Mr. Nancarrow described the process used to conduct the intrusive and non-intrusive inspections. He discussed preliminary outcomes or findings of the inspections and presented a proposed methodology to address the findings. Following the briefing, the committee entertained questions and discussion around Lockheed participation in the effort. The group discussed best practices and the likelihood that implementation of best practices could bring about design changes. The group discussed strategies on how industry might implement what has been learned. Mr. Hollinger advised the group that implementation strategies would be covered in detail following briefings and reports on activities of the working groups. He also reminded the group that the lessons learned activity was not a

part of the initial task, but rather a subsequent request that the FAA directed of the manufactures. Copies of the briefing material were distributed to committee members and others in attendance (Handout 3).

Status of OEM Service Bulletin Review

Mr. Don Anderson provided the report on progress made on significant items/service history. There were 712 documents identified by the working groups for review by the OEMs. The working groups reviewed the documents and determined 69 required a more in-depth review. The process used to conduct the reviews included a review of each model by service engineering and a chief engineer for decision on whether the item is safety related or needed further emphasis. Items of significance would be reviewed by an engineering investigation board responsible for in-service reliability of the aircraft. If warranted a further review would be conducted by a safety review board worked in coordination with the FAA in the conduct of a probability analysis or other detailed analysis that could lead the item to alert status. Nine or ten items are on the SRB agenda for review. It is anticipated that resolution of the items will be complete by the end of the year 2000. In response to questions posed by the group, Mr. Anderson noted that each operator is charged with reevaluating the 712 service bulletins for wiring related actions for possible implications. No decision has been made to upgrade any of the items to alert or special program status. A decision of items requiring further emphasis of service history is expected to be completed by the end of November.

ATA Wire Code

Mr. Don Collier briefed the group on the ATA codes and concerns raised at a recent ATA committee meeting around whether Chapter 97 is official in light of the FAA's recent changes to its SDR program. Ms. Angela Elgee explained the JAS codes and the need to standardize 4-digit codes to harmonize with the JAA. She further emphasized that the system is not very different from the ATA codes. She stated that use of these codes should reduce the number of translation tables and allow for better data manipulation. She further emphasized that the FAA is looking for the most appropriate means to capture data consistently. She mentioned the advisory circular in support of the SDR program is being worked now, and there is some flexibility to adjust the guidance to address concerns raised by the ATA concerning coding. After considerable discussion around the concerns with integration of the SDR program, JAS codes and the ATA codes, the group decided to defer any decisions until the group has an opportunity to consider the FAA proposal for reporting of wire system service difficulties.

Wire System Service Difficulties

Mr. Harkey Mayo reported on FAA's review and analysis of various reporting formats used within the FAA and by industry to capture accident/incident and maintenance actions involving wiring systems. The objectives of this review are to recommend changes that would enable integration and analysis of data bases and identify potential new data elements related to wiring issues that are needed to assess trends. The analysis reveals a need to (1) standardize data element coding within FAA, across government

agencies and industry; (2) capture maximum number of records; and (3) distinguish wiring-related records. The analysis further reveals a need to (1) build an integrated data base that includes wiring-related data; (2) encourage electronic reporting; and (3) identify additional data elements for collection of wiring-related issues.

Using wiring data from the SDR system and data elements from the non-intrusive inspections, Mr. Harkey then presented a mock-up data system that could allow for trend analysis of wiring issues. He emphasized a need to collect additional data to establish a baseline of wiring issues. He further suggested that additional fields were needed in the existing SDR program, and suggested only one new element that would be required to collect data on wire types. A question was posed as to when the mock system could be beta tested. He responded that the system was not near the point of being beta tested. In fact, noting that there has been no discussion as to whether the items contained in the mock-up are the data elements to be collected for wiring issues. He indicated that further discussion within FAA and between FAA and industry is needed before we could proceed.

Next steps included work with other FAA elements, other government organizations and industry to (1) reach consensus on key data elements; (2) develop vehicle for data collection; (3) implement data collection system; (4) build an aging systems database; and (5) begin analysis.

After extensive discussion of the report, Mr. Hollinger returned the group to the discussion before lunch on what recommendations the committee might make to the FAA regarding wiring reporting. To refocus the group he specifically asked if the recommendations would be around Subchapter 97, whether Subchapter 97 information would be for reporting only or if it is intended to include reliability programs. He further questioned if the group was getting too detailed and if another group should be set up to look at this issue and if so what kind of direction a new group would be given.

In response to a question from the floor, Mr. Huber responded that the data base would be set up to assess trend analysis of wiring issues associated with new airplanes as well as existing airplanes. The primary goal is to assess our ability to do trend analyses. Industry expressed a desire to come together with the FAA on a process for trend analyses that would benefit industry as well as serve FAA needs. The chair directed the ATA coding group to meet with FAA and other OEMs to work out concerns or differences including data elements, JAS codes, Subchapter 97 and the advisory circular. The group would get back to the chair in electronic form by early November. Recommendations from the ATA coding group would be forwarded to committee members for consideration in preparation for the January 2001 meeting.

Intrusive Inspection Project

Dr. Chris Smith briefed on the results of the intrusive inspection project emphasizing that the briefing was essentially a roadmap to the conclusions and recommendations found in the report of the intrusive inspection project. The committee asked for clarification of

terms used during the briefing and found in the report and other questions were posed during the briefing. Following considerable discussion from the floor, Dr. Smith indicated that the working group would have liked to have additional time to continue laboratory analysis.

Following the briefing, Mr. Hollinger stated that the intent was to have the presentation and since not every member had the report ahead of time, digest what we have seen and heard overnight, and take time tomorrow to have discussion and decide on next actions concerning the report. Questions were posed concerning minority opinions and the format for responding to minority opinions. Mr. Huber pointed out that there is ATSRAC guidance concerning minority opinions emphasizing the importance of the committee forwarding all positions to the agency, and the agency would make a decision based in part on information submitted. Copies of the minority opinion were distributed to the group for consideration. (The briefing material is handout 5.)

After some discussion, the group decided it best to cover one additional report (agenda item) and begin the next day with discussion of the report of the Intrusive Inspection Project.

Standard Wire Practice Working Group Report -- Task 4

Mr. Dave Allen gave a status report on the activities of the Task 4 working group (Handout 6). The working group was tasked to review, update and simplify the Chapter 20 wiring manuals, several FAA advisory circulars, ATA Spec 117 and other specifications and standards applicable to aging aircraft wiring systems. The basis for the updates was to be the data received from the non-intrusive inspections, the service bulletin reviews and the intrusive inspections. Their second task was to define a process for training programs for maintenance, repair and inspection of aging aircraft.

Following the briefing, Mr. Allen suggested that if there were no additional actions to the working group from the committee, the working group considers its tasks complete. Mr. Huber asked if the working group's training recommendation is being included in task 5. The response was yes, the training task is comprehensive and addresses training on use of manuals for standardization as well as training programs. A member of the committee then requested the status of the revisions to advisory circulars and Mr. Sobeck provided and update on those actions.

A motion was made to accept the report. Another member asked whom is responsible for implementation of the recommendations and what role ATSRAC would play to ensure they are implemented? Mr. Hollinger responded that the committee would discuss tomorrow implementation of recommendations.

The meeting was adjourned for the day at approximately 5:40 p.m.

Intrusive Inspection Project

Mr. Hollinger reconvened the ATSRAC meeting at 8 a.m. on October 12, 2000 with discussion on the report of the Intrusive Inspection Project. He suggested that the term "non-serviceable" in the report be changed because it is a term that is widely used in industry with a different meaning and may be confusing and as explained yesterday, as used in the report it meant areas of the wire that were not routinely serviced. As used in industry, the term means "unflightworthy" which is something else.

Another member of the committee recommended that the working group conduct additional laboratory analysis. Dr. Smith agreed that adding statistical significance to the data that we do have and where possible the differences seen and reasonable explanation for those differences where possible. He further suggested that the working group ensure that the data is not misrepresented in light of additional samples.

Extensive discussion ensued around next actions of the committee, including regulatory actions and the appropriate body to develop those actions. Mr. Ed Block interjected a statement, after which the chair asked if the statement was his minority opinion. Following more discussion, Mr. Huber shared procedures for addressing minority opinions. The committee then discussed interaction between the working groups and distribution of preliminary reports. The working group was directed to make the following changes to the report of the Intrusive Inspection Project:

- replace the term "non-serviceable"
- the recommendations should be more "direct"
- reference page 16 of the report—more "technical" terms should be used
- "common mode" for broken shield
- clarify the term "opinion" as used on page 65 in reference to rulemaking at page 66
- obtain closure of comments from OEM experts
- OEMs to disposition the five items—(1) 747, (3) DC-9, (1) Airbus aircraft. The dispositions should be recorded in the report.
- Is "lint" included in contamination? Is it identified as flammable?

The working group also was instructed to:

- Continue laboratory and data analysis through 12/29/00
- Layout a roadmap and make the report accessible to other working group chairs 11/24/00
- Consider the minority opinion in accordance with ATSRAC operating procedures. The working group would complete this action by 11/24/00 or during the next working group meeting.

Other working groups (maintenance, training, wiring) were directed by the committee to review the draft report of the Intrusive Inspections Report and formulate specific, detailed recommendations that could include: maintenance program changes; regulatory action; advisory material, training program changes. Reports from these working groups are expected by 12/31/00.

Finally, with respect to the report of the Intrusive Inspection Project, the Chair requested additional comments from ATSRAC be submitted electronically to the Chair by 10/27/00.

Training Working Group Presentation

Mr. Mike Nancarrow gave a presentation on Task 5 -- Training (Handout 7). The presentation provided a status report on Task 5 activities since the last report out. The group has received additional input from industry (both positive and supportive). The Curriculum and Lesson Plans include feedback from Flight Safety Boeing Training International, OEM's, working group 5, ATA Aviation Technical Education Council, IATA and regulatory agencies (FAA, CAA, JAA, TC). Changes to the draft report include: (1) action items from ATSRAC, (2) input from tasks 1, 3 and 4, (3) information from ATA Specification 117, (4) Boeing internal training material; (5) industry response following requests for feedback; (6) specific training for OEM standard wiring practices manual.

Next actions include incorporating information obtained from final reports on other tasks; and correlation of curriculum and lesson plans to recommendations from other tasks. The working group expects to forward the final draft to ATSRAC at the January 2001 meeting.

In response to a question posed by a committee member, Mr. Nancarrow stated that there are format differences from OEMs standard wiring practices and technical details that may require updates to the lesson plans. The team believes the report is 85-90 percent complete. The chair requested that the final report be submitted within 2 weeks before the end of calendar year 2000. Another member requested that the notion of "clean as you go" be included in the report. Still another member requested that as a maintenance practice, circuit breaker procedures be included for wiring repair.

The Chair again requested that the ATSRAC members provide any comments to the working group by November 3, 2000.

Maintenance Working Group Report -- Status of Task 3 Subcommittee Activities

Mr. Tony Harbottle gave a status report on Task 3 (Handout 8). He began with conclusions reached by the working group that adoption of the recommendations developed through activities of the working group will lead to a significant improvement and specifically stated what the improvements would be if training is considered a key element in the maintenance process.

Mr. Harbottle then summarized the percentage of completion of each of the specific tasks and where the working group is in terms of completing the final report. He then walked the group through the specifics of each task and recommendations of the working group,

responding to questions from the group. Members of the committee asked that the working group consider or take into account issues such as combustible items in the vicinity of wire bundles.

Following the summary of the recommendations, Mr. Harbottle provided an update on the schedule of activities of the working group. Extensive discussion among the group ensued on a number of issues for example differences in wire types for incorporation into the training program and for continuity sharing of information among the working groups. The committee indicated by a show of hands that there is agreement on the direction of the working group.

Implementation Proposals

Mr. Chuck Huber opened the discussion stating that the FAA has had internal discussions on implementation of ATSRAC recommendations; and would like to hear from industry as to how it would suggest we go about implementing the recommendations. Turning then to Mr. Fred Sobeck who stated that OEM's are already starting to voluntarily comply with some of the recommendations. Mr. Sobeck presented short-, mid- and long-term goals from a Flight Standards perspective.

The short-term goal includes use of the agency's authority under the operations specifications under part 121. Part 121 in the U.S. hits about 95% of the carriers in air transportation.

As a mid-term goal, the agency would look at rulemaking under part 121 similar to the structural program that is still ongoing. There are still rules ongoing from the aging aircraft structural program. We envision starting a 121 rulemaking that would address aging systems in parallel with the operations specifications.

The long-term initiative to be considered by this group is how do we get these recommendations out to the rest of the world. Using the Aging Aircraft Program as an example, we held discussions with ICAO that enabled incorporation of aging aircraft programs into Annex 6 and 8. We started out with AD programs mandating structural modifications, corrosion prevention and control programs, SID programs followed by revisions to part 121, the Aging Aircraft Safety rule which should be issued soon. We also will have the corrosion rule that eventually will be published for comment, and the SID, corrosion prevention control, and structural modification programs that are also addressed in ICAO Annex 6 and 8.

In response to a comment concerning use of operations specifications in other countries, Mr. Sobeck advised that issuance of a 121 rule in the U.S. enables other governments to address aging systems within their regulatory structure. Mr. Huber added that an advisory circular would be developed along with the rulemaking to assist in maintenance effort.

When asked if operations specifications is a form of rulemaking, Mr. Sobeck responded that the FAA would be taking advantage of its existing authority under part 121. He added that the agency pretty much has an operations specification page drafted for aging systems or aging wiring. The items under aging systems would be identified in an ac, which would be one means of compliance with the aging systems program that is now part of your maintenance program.

Mr. Sobeck, Ms. Elgee, and Mr. Huber discussed possible future taskings to ATSRAC using the structural program, emphasizing the need for industry input and guidance. As an example of how this would work, the enhanced zonal inspections program would be developed by industry (using the older aircraft first) and then the FAA would require that it be included in the maintenance program. The manufacturers and airlines are expected to support this effort, as was the case in the structural program. The agency sees using the three legged stool (manufacturers, operators, Government) in this case as well. The FAA probably will issue airworthiness directives as well. We see using a process similar to the MRB.

Mr. Huber moved to close the discussion of next steps in the operations/maintenance area acknowledging that the dialogue with industry was beneficial and that we hope that industry will voluntarily move forward with some of these recommendations. Another individual stated that clearly, industry has the technical expertise in terms of the design of the aircraft. This is a high profile area and strong participation from industry is needed in this effort.

In response to a comment from Mr. Collier concerning whether design changes are likely to come out of this effort, Mr. Huber responded that from a certification standpoint, no part 25 rule changes are in mind as a result of the ATSRAC effort. Dr. Smith then reiterated that information from the intrusive inspection project is incomplete and in order for the report to contribute to the rule, design specific, aircraft specific, application specific information would need to be added to the report that would support writing a rule. The information in the report is incomplete in that regard. The intent was not to rule out rulemaking, but to say that the information is incomplete. We did state, however, that visual inspection alone is inadequate and something else must be done. This almost forces us into the realm of modification of design. For example, arc fault circuit interrupters, segregation/separation of wires from contaminants, additional shielding from heater contaminants are all things that we have specifically identified for possible remedial action. Sometimes those actions are specified in the absence of any possibility of visual inspection.

The committee continued to look at possible new tasks and appropriate working groups to support those activities. The chair summarized the proposal on the table for formation of a new group to look at the results of the non-intrusive and intrusive inspections with focus towards design changes to preclude findings. Without clear consensus the motion did not pass. Mr. Huber suggested and the committee agreed that this should be an agenda item for the next meeting.

After discussion of action items, Mr. Hollinger turned to Mr. Huber to continue discussion of the future of ATSRAC. Mr. Huber stated that it is the agency's desire to extend the term of ATRAC for the purpose of moving into an implementation phase. As far as new tasks:

1. We spoke earlier of future maintenance activities;
2. There is work going on in our research and development area around circuit breakers, aging circuit breakers, arc fault circuit breakers and we would like your assistance in determining what we need to do with those items;
3. Mechanical systems is yet another area. We are putting together a research program to focus on the aspects of aging mechanical systems and we would look for assistance from you in this area. We are working with JAA to identify aging aspects of mechanical systems.
4. Additionally, more work is needed in the area of wire reporting. This committee could assist in gathering the right people for this effort.

From an FAA aspect, we would like to extend the ATSRAC charter. If we proceed in this direction, the membership of ATSRAC may change depending on the tasks. For the maintenance tasks, we will need to add more representatives from the airlines and representation is needed from repair stations.

The committee then discussed agenda items for the next meeting and tentatively scheduled future meetings. See action items (below).

Action Items

Mr. Hollinger reviewed the action items from past meetings and completed new action items as a result of this meeting.

Adjournment

The meeting adjourned at 2:20 p.m. on October 12, 2000.

Kent Hollinger
Chair
Approved:

ACTION ITEMS

1. Provide input to Paul Lapwood on the training curriculum and lesson plans by 11/3/00. *(ATSRAC Members) Original action from July 2000 meeting.*
2. Solicit feedback from association membership on the training curriculum and lesson plans presented by Paul Lapwood by 11/3/00. *(ATA, AIA and IFA) Original action from July 2000 meeting.*
3. Contact engine manufacturers about wiring and have them provide someone to make a presentation at the next ATSRAC meeting. *(Bob Robeson) Original action from July 2000 meeting.*
4. ATA coding group, with appropriate representation from OEM's and others, to meet with FAA on 10/17/00 to discuss improvements to wire code reporting for SDRS and airline ongoing reliability programs and report back to ATSRAC electronically by 11/11/00.
5. Submit waiver request within 2 weeks so that ATSRAC can plan January 2001 meeting accordingly. Check availability/use of Federal facility in Miami. *(Chuck Huber)*
6. Future meetings: 1/17-18/01; 4/25-26/01 (Bessie Coleman Room); 7/25-26/01; 10/24-25/01
7. Revise the Intrusive Inspection draft report as follows *(Inspection & Service Data Review WG)*:
 - Replace the term "non-serviceable"
 - The recommendations should be more "direct"
 - Reference page 16 of the report—more "technical" terms should be used
 - "Common mode" for broken shield
 - Clarify the term "opinion" as used on page 65 in reference to rulemaking at page 66
 - Obtain closure to comments from OEM experts
 - OEMs to disposition the five items – (1) 747, (3) DC-9, (1) Airbus aircraft. The dispositions should be recorded in the report
 - Is "lint" included in contamination? Is it identified as flammable?
8. Continue laboratory and data analysis. Expected completion date is 12/29/00. *(Inspection & Service Data Review WG)*
9. Layout roadmap for future actions. Expected completion date is 11/24/00. *(Inspection & Service Data Review WG)*.
10. Consider minority opinion in accordance with ATSRAC operating procedures. Expected completion date is November 24, 2000 or during the next task group meeting. *(Inspection & Service Data Review WG)*
11. Additional comments from ATSRAC concerning the draft Intrusive Inspections Report should be submitted to Kent Hollinger by 10/27/00.

12. Other task groups (maintenance, training, wiring) to review the draft Intrusive Inspections Report and formulate specific, detailed recommendations that could include: maintenance program changes; regulatory action; advisory material, training program changes. Reports from these task groups are expected by 12/31/00.

13. Agenda Items for January 2001 Meeting:

- Discussion and Decision on Intrusive Inspection Report
- Discussion and Decision on Maintenance Working Group Report
- Discussion and Decision on Training Working Group Report
- Discussion of New Tasks
- Discussion of Wiring from Engine Manufacturer's Perspective
- Discussion of and Rationale for Origins of Data included in AC 25-16 and AC 29.2B
- Further discussion on formation of a new group to look at the results of the non-intrusive and intrusive inspections with focus towards design changes to preclude findings.

14. Continue to monitor the implementation of ATA code 97. *Original action from July 2000 meeting.*